

three inches into the wet soil of the ground. This battery thus arranged produced feeble decomposing effects, as nearly as I could judge answering the description Mr. Barry has given. Its intensity was, of course, far lower than the electricity of the kite-string, but the supply of quantity from the discharging train was unlimited. It gave no shocks to compare with the "usual shocks" of a kite-string.

78. Mr. Barry's experiment is a very important one to repeat and verify. If confirmed, it will be, as far as I am aware, the first recorded case of true electro-chemical decomposition of water by common electricity, and it will supply a form of electrical current, which, both in quantity and intensity, is exactly intermediate with those of the common electrical machine and the voltaic pile.

III. *Magneto-Electricity*

79. *Tension*.—The attractions and repulsions due to the tension of ordinary electricity have been well observed with that evolved by magneto-electric induction. M. Pixii, by using an apparatus, clever in its construction and powerful in its action,¹ was able to obtain great divergence of the gold leaves of an electrometer.²

80. *In motion* : i. *Evolution of heat*.—The current produced by magneto-electric induction can heat a wire in the manner of ordinary electricity. At the British Association of Science at Oxford, in June of the present year, I had the pleasure, in conjunction with Mr. Harris, Professor Daniell, Mr. Duncan, and others, of making an experiment, for which the great magnet in the museum, Mr. Harris's new electrometer and the magneto-electric coil³ were put in requisition. The latter had been modified in the manner I have elsewhere described,⁴ so as to produce an electric spark when its contact with the magnet was made or broken. The terminations of the spiral, adjusted so as to have their contact with each other broken when the spark was to pass, were connected with the wire in the electrometer, and it was found that each time the magnetic contact was made

¹ *Annales de Chimie*, 1, p. 322.

² *Ibid.* li. p. 77.

³ A combination of helices was constructed upon a hollow cylinder of pasteboard: there were eight lengths of copper wire, containing altogether 220 feet; four of these helices were connected end to end,

and then with
the galvanometer; the other intervening four were also
connected end to
end, and the battery of one hundred pairs discharged
through them.

* *Phil. Mag. and Annals*, 1832, vol. xi. p. 405.